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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/738,892	12/18/2000	Yanxiang Cao	3848.00059	2160

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EXAMINER

SIEW, JEFFREY

ART UNIT

PAPER NUMBER

1637

DATE MAILED: 09/24/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/738,892

Applicant(s)

CAO ET AL.

Examiner

Jeffrey Siew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 43-56, 58, 60-74 and 76 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-56, 58, 60-74 and 76 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

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1. The response filed 7/9/03 has been fully considered and deemed not persuasive. The response states that Wei do not provide any motivation to apply random primers. Wei explicitly states using random hexamer in the production of second strand cDNA. While they do state replacement synthesis does have particular efficiency in second strand cDNA synthesis, it does not detract the advantages of random hexamer in promoting long extension by using hexamers along the whole expanse of the first strand. As Wei et al explicitly state to use random hexamers and it was well known in the art that the random hexamers promote long extension, it would have been prima facie obvious to apply Wei et al's teaching of random hexamers to Mack et al's method. The response further states that Wei teach away from random hexamers. Wei teaches that short random primers may not specifically anneal and provide guidance as to the size of primers required. Wei et al's teachings of certain problems does not teach away particularly when they teach steps to avoid such problems. Finally the response states that Mack do not teach the use of random hexamers. The basis of the rejection is the combination of Wei et al and Mack et al. Wei et al supplies the motivation and the missing limitation in Mack. As the basis the responses arguments rely on the Wei et al, the 103 rejections over Mack et al and Wei et al are maintained.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 43-46, 49-52, 56, 58, 60-70, 74 & 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mack (US6,303,301 Oct. 16, 2001) in view of Wei et al (US5,851,802 Dec. 22, 1998).

Mack teaches a method of producing a population of cDNA from a population of RNA wherein said method employs a primer having a first portion which is complementary to a plurality of RNA molecules in said population, and a second portion comprising a promoter sequence wherein first portion is 3' to second portion, synthesizing second strand cDNA to form double stranded cDNA, creating a population of cRNA from double stranded cDNA, hybridizing the population of cRNA to an array and analyzing hybridization pattern (see whole document esp. col. 39 line 61-col. 40 line 45 teaching oligo dT primer with T7 RNA polymerase promoter on its 5' end gene expression and array hybridization; col. 32 lines 15-26 teaching labeled RNA from malignant breast cancer tissue for array hybridization). Mack teaches polyA RNA (col. 14 line 44). They teach total RNA preparations (see col. 14 line 36). He teaches also cDNA reverse

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transcribed-from-transcript (see col. 14 line25). They teach fluorescent labels incorporated during in vitro transcription (see col. 23 lines 62-66).

Mack does not teach synthesizing second strand cDNA using random hexamers.

Wei et al teach using random hexamer to anneal to first strand cDNA and extended by DNA polymerase such as Klenow fragment to produce second strand cDNA.

One of ordinary skill in the art at the time the invention was made would have applied Wei et al' teaching of random hexamers to Mack's method of cDNA synthesis in order to produce the second strand. Wei et al states that the random hexamer method provides a more efficient method for producing second strand cDNA. It would have been prima facie obvious to apply Wei et al's teaching of random primers to Mack's cDNA synthesis method in order to efficiently produce the second strand cDNA.

3. Claim 47,48,53-55,71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mack (US6,303,301 Oct. 16, 2001) in view of Wei et al (US5,851,802 Dec. 22, 1998) in further view of Van Gelder et al (US5,891,636 April. 6, 1999).

The teachings and suggestions of Mack and Wei et al are described previously.

Mack do not teach myeloblastoma virus reverse transcriptase and they teach second strand cDNA using Ecoli DNA I polymerase, T3 or Sp6 promoter.

Van Gelder et al teach myeloblastoma virus reverse transcriptase and they teach second strand cDNA using Ecoli DNA I polymerase (see page 33 cDNA synthesis). They also teach T3 and SP6 promoter (see claim 11).

- One of ordinary skill in the art would have been motivated to apply Van Gelder et al.'s teaching of reverse transcriptase, T3, SP6 promoter and E coli DNA I polymerase to Mack's method of cRNA synthesis in order to successfully produce large quantities of cRNA. Van Gelder teaches the successful cRNA production using the different promoters and polymerases. It would have been prima facie obvious to apply Van Gelder et al.'s equivalent promoters or polymerases to Mack's same cRNA production purpose in order to successfully produce cRNA. (see also MPEP 2144.06 In re Fout ).

### **SUMMARY**

4. No claims allowed.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Siew whose telephone number is (703) 305-3886 and whose e-mail address is Jeffrey.Siew@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route. The examiner is on flex-time schedule and can best be reached on weekdays from 6:30 a.m. to 3 p.m. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (703)-308-1119.

Any inquiry of a general nature, matching or filed papers or relating to the status of this application or proceeding should be directed to the Tracey Johnson for Art Unit 1637 whose telephone number is (703)-305-2982.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Center numbers for Group 1600 are Voice (703) 308-3290 and FAX (703)-308-4242.

  
JEFFREY SIEW  
PRIMARY EXAMINER

September 21, 2003